Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of	}	
	}	
Revision of Part 15 Rules of the Commission's	}	
Rules Regarding Ultra-Wideband	}	ET Docket No. 98-153
Transmission Systems		}

Reply Comments

Technos, Inc. (Technos) submits these further reply comments in response to the Notice of Proposed Rule Making (NPRM), FCC 00-163, in the proceeding referenced above. These comments address the most recent submissions provided to the FCC under this docket, including recommendations and conclusions made in submissions by others suggesting continued rule making in this proceeding. Some of those submissions were based upon recent UWB interference test data provided by NTIA, Stanford University, Marshall Space Flight Center, University of Texas-Austin, Johns Hopkins University/Applied Physics Lab and others. Recommendations have been submitted to the FCC by others for either a Rule & Order or Further Notice of Proposed Rule Making (FNPRM) based upon these test data.

Technos routinely uses geophysical tools that may be classified by the FCC as UWB devices. These devices include a wide variety of ground penetrating radar (GPR) and electromagnetic (EM) instruments that operate from a few Hz to approximately 1 GHz. These devices are used to measure the physical properties of the subsurface (below the ground surface), and have been an integral part of our environmental and engineering investigations since the mid-1970's.

We have carefully followed the proposed FCC rule changes that govern UWB devices, and are concerned that the proposed rule changes would severely limit or prohibit the use of such geophysical devices.

We understand the need to protect frequency bands from interference (including those used by GPS and cellular phones). However, the geophysical devices referenced do not pose an interference threat because:

- They direct electromagnetic energy into the ground with limited amounts escaping into the atmosphere;
- They operate with extremely low power; and
- They are only used within the scope of specific environmental or engineering projects over short periods of time and localized areas.

It is our understanding that the recent tests referenced above did not accurately depict the use of geophysical devices in which energy is directed into the ground. The GPR and EM instruments are routinely used in conjunction with GPS, two-way radio links, and computer data links. Never have we observed interference from the GPR and EM instruments in GPS data, radio communication, or computer data links. In fact, many of the geophysical devices (including GPR) are made so that GPS receivers are mounted directly on them to provide accurate positioning data.

We have worked with GPR and EM instruments at the Toronto, Orlando, and Miami Airports with no impact on communication or GPS receivers. In one case, a GPR system was used to trace a sensitive communication cable leading to the air traffic control tower at the Miami Airport with no interference problems. In other surveys on land and over water, these devices have not interfered with sensitive real-time GPS receivers located within a few feet of the instruments. Quality assurance checks at USGS benchmarks with the GPS systems have shown repeatability (precision) well within the manufacturer's specifications while EM and GPR devices were operating within close proximity.

We ask that the FCC not restrict the use of such geophysical devices. If interference test data are needed to guide future recommendations, we ask that the tests be carried out with the geophysical devices used in a manner that is typical of their field operation.

Sincerely,

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